FAMILY BACKGROUND AND DEVIANT BEHAVIOR IN RELATIONSHIP TO INHALANT USE IN BANGKOK

A THESIS

SUBMITTED TO THE FACULTY OF CLARK ATLANTA UNIVERSITY

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR

THE DEGREE OF MASTER OF ARTS

BY

KANASAK JINDACHOT

DEPARTMENT OF CRIMINAL JUSTICE ADMINISTRATION

ATLANTA, GEORGIA

MAY 1990

ABSTRACT

CRIMINAL JUSTICE ADMINISTRATION

Jindachot, Kanasak B.A., Ramhamhaeng University, 1982

Family Background and Deviant Behavior in Relationship to Inhalant Use in Bangkok

Advisor: Dr. K. S. Murty

Thesis dated May 1990

The objective of this study was twofold. The first task was to investigate the family background variables associated with inhalant users in Bangkok in comparison with non-users. The study focused on six areas: marital status, parents' education, parents' occupation, parents' manners, parents' relationship and family income. Second, inhalant users and non-users were compared with reference to specific deviant behaviors: fighting and disputes, absence without leave from school, fleeing from home, cigarette smoking, alcohol drinking and arrest by police. It was reasoned that inhalant users unlike non-users were likely to be generalized deviants.

Two population sample groups were utilized: 1) the study group users selected from hospital-admitted-inhalant-addicted patients and from the Bangkok Central Training Home for juvenile delinquents; and 2) the central group

was selected from two secondary schools. The data were collected by personal interviews. Chi-square was the major statistic test used for comparative purposes.

The study group in comparison with the control group was found to have negative family background situations, and to be more frequently deviant in respect to other inhalant users. They were found to be generalized deviants.

ACKNOWLEDGEMENTS

My sincere gratitude and appreciation is extended to my advisor, Dr. K. S. Murty, for his valuable guidance, encouragement, attention and assistance throughout this study. I also thank Dr. Julian R. Roebuck for his constructive suggestions.

I appreciate my parents for their emotional and financial support throughout this research project.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER I

INTRODUCTION: EFFECTS AND EXTENT

There has been a history of hydrocarbon inhalant practices in Europe and North America since 1800. Adhesive glue and nail enamel solvent sniffing were first introduced in 1960. Later, when aerosol sprays were invented, inhalant practices increased and became a problem in many countries. Adhesive substances in the form of cements for toy plane assembling are the current favorites among inhalant sniffers. Though the World Health Organization has banned thinner and adhesive substances, there is still no law in Thailand governing the use of these substances.[1] Users claim that inhalants give them a feeling of being relaxed; give them freedom from agitation, doubt or pressure; provide relief from parental and other pressures; and make them feel powerful, fearless and acceptable by peers. The inhalants covered in this research are volatile solvents, odious liquids, that are rapidly evaporating substances: benzine, thinner, lacquer, lighter fuel,

---

[1]Office of the Narcotics Control Board, "Inhalant," material paper, 1984.

kerosene, glue, varnish, nail enamel and aerosol spray. Most of these volatile solvents are widely used in various industries, and therefore easily available to would be users.

The thinner sniffing problem is different from opiate use, because inhalant users are not hard core drug users. However, inhalants are habit forming, and those habituated to them, are frequently designated in the literature as "inhalant addicts." This is the case in Thailand. Therefore, those habituated to inhalant use are designated addicts in this thesis research. Inhalant use is known to be associated with particular negative situations and surroundings.

These volatile solvents that are required in many industries do not appear to be harmful to workers and the general public. However, if sniffed intentionally and excessively for pleasure, they become seriously hazardous to the user's health. Physicians confirm that inhalant practice creates intoxication, dizziness, dim sight, hallucinations, coma and even death. When inhaled into the lungs, the solvents are absorbed into the bloodstream and act directly upon the brain, particularly the respiratory center. Moreover, excessive inhalant use affects the heart beat and may cause heart attacks. Habitual inhalant practice may also cause degeneration of the brain, liver,

kidneys, etc. Furthermore, inhalant use frequently leads to mental and nervous disorder symptoms such as loss of self-consciousness, reduction in judgement, and ravings or hallucinations. Suicide, sex offenses and other criminal conduct have been frequently concomitant with inhalant use.

Studies on volatile solvents, such as glue dilutant, thinners, gasoline, etc., since 1941, show that raving symptoms result from habitual inhalation use that may lead to brain wave disorders similar to those found in mental cases.[2] Tawatchai Thai-Khiew[3] observed that intentional inhalant sniffing leads to continued sniffing, although no physical craving is necessarily involved. The inhalant tends to delude the sniffer and leads to habituation. Aggressive behavior frequently accompanies sniffing owing to intoxication in similar fashion to the aggressive behavior following alcohol use.

Rawadi Tiewthanom[4] observed that immediate, complete inhalant withdrawal by long, habitual sniffers caused no

---

[2]Tawatchai Thai-Khiew, "The Etiology of Inhalants Abuse" (Master thesis, Mahidol University, 1983).

[3]Ibid.

[4]Rawadi Tiewthanom, "Solvents and Aerosol," Health Department, Bangkok Metropolitan, 1982.

craving except some abdominal pain. This coincides with the observations of Rado and Fenichel, that inhalant use is not addicting but frequently leads to habitual sniffing.[5]

Youth research studies have reported an increase in youth inhalant use since the 1960s in developed, developing and underdeveloped countries. Such use is usually associated with negative family structural variables and negative socialization factors. Volatile substances have no addicting effects but they inspire habitation. Rado, Fenichel and Massengale[6] studied the IQ level of the inhalants and found no differences between them and non-users. Steroling[7] observed ten inhalant addicts in a hospital situation, and found that they came from broken families (either a deceased parent, a deserted parent or a divorced parent). In 1981 Ackerly and Gibson[8] reported that sniffing and alcohol drinking were associated and caused health and conduct problems among users. They considered both to indicate antisocial behavior. Research

---

[5]Puthi Mongkolcheep and Others, "The Study on the Problems of Inhalant Practice of the Youth," 1981.

[6]Ibid.

[7]Ibid.

[8]Ibid.

in the United States conducted by Terry Mason in 1982[9] revealed that inhalant users were normally seven to seventeen years of age (thirteen years average), mostly males, urban residents, and products of low-income families. They were also often orphans, products of broken homes, and large, poor, uneducated multi-problem families.

In comparison with different groups of other drug users, inhalant users have been found to express more imaginary feelings about death, and to have more suicidal tendencies. They have been frequently found to be a deviant group within a "deviant group." Moreover, most of them have records of being arrested and imprisoned.[10]

M. Elema Median Moral found in the Mexican, Distrito Federal (Mexico City), that inhalant use was popular among fourteen and fifteen year olds. Three out of one thousand youths were estimated to have a habit of constant inhalant practice. This habit was more usual among the unemployed youth (eighteen times that of those employed).[11] The

---

[9]Sirikarn Chanmachanakit, "Facts about Solvents and Aerosols," Addiction Research Foundation of Ontario, Canada, 1980.

[10]Office of the Narcotics Control Broad, "Inhalant," material paper, 1984.

[11]Narcotics Research Center, "College-level Respondents to Questions on Thinner Sniffing," Medical Scientific Research Institute, Chulalongkorn University, 1977-1978.

Institute of Military Psychology in Sweden has reported an increasing rate of inhalant practices among military recruits (about eighteen years of age), in a survey conducted from 1967 thru 1973.[12]

In the Philippines, results of medical research studies have revealed that inhalant practice, is harmful to liver, kidney, heart and nervous systems, and that it might cause even death. This causes practice habitation, loss of self-consciousness, poor social conduct, and frequently leads to other drug abuse.[13] Inhalant use is reported to be widespread among Philippine youth from twelve through eighteen years. President Ferdinand E. Marcos, therefore, on July, 1979 ordered the Presidential Decree No. 1619 E/NI 1979/46 for the control of volatile solvent use and distribution to stop the use of such solvent as dangerous drugs.

Thailand's total population, currently is 55,000,000 persons, and approximately 24.2 percent or 11,000,000 are juveniles, the nation's future valuable resources. It has been estimated that 5 percent of youth use opiates and/or

---

[12]Ibid.

[13]Narcotics Research Center, "Report on Narcotics," Medical Scientific Research Institute, Chulalongkorn University, June 1979.

inhalants. However, there are no official statistics on these estimates, and no breakdown between opiate users and inhalant users.[14]

Unfortunately, a large number of these youths are thought to use inhalants (volatile solvents such as lacquer, thinner, Benzine), though not illegal, as gateways to the use of illicit hard drugs. Inhalant sniffing has been a problem in Thailand since 1977 when a survey by Thailand Ministry of Education, in cooperation with Chulalongkorn University, reported that more than 20,000 students were habituated to thinner sniffing and other inhalant practice in various schools and colleges. In some countries, such as, the U. S. A., Canada, United Kingdom, Switzerland and Mexico, this problem is also encountered.[15]

Dr. Udomsilp Shrisangnam, an outstanding psychiatrist at Siriraj Hospital, Faculty of Medical Science, Mahidol University in Thailand, maintains that youth inhalant practices are much more dangerous than heroin use. Users frequently have both immediate and chronic symptoms such as squemish chest pains, bronchitis, and brain and nervous

---

[14]Ibid.

[15]Preventive Education Division Report, "Inhalant," Office of the Narcotics Control Board, 1981.

system deterioration, which can cause death. He claims that many youths in slums have been habituated to inhalant use since 1971, and that the admission rates in Thailand hospitals have been increasing since.[16]

In Thailand, problems of inhalant practices among children and youths are reportedly increasing in dense residential areas. A study made in 1978 on drug abuse among students revealed that thinner, lacquer and benzine sniffing were very popular among the school-going population and juveniles. In some schools, more than 20 percent of the total pupils were reported to have tried inhalants. Student youths, both in Bangkok and in other cities and districts have been found to be using volatile solvents as inhalants.[17]

Table 1 shows the estimated inhalant addicts by age groups. Table 2 shows the estimated inhalant addicts by occupational status in Bangkok. Table 3 shows the Bangkok college-level students responses to "ever having used inhalants." Table 4 shows the Thailand college-level responses to "ever having used inhalants."

---

[16]Udomsilp Shrisangnam, "Inhalants and Other Drugs," Research Report, Siriraj Hospital, Faculty of Medical Science, Mahidol University, 1984.

[17]Narcotics Research Center, "Report on Narcotics," Medical Scientific Research Institute, Chulalongkorn University, June 1979.

TABLE 1

ESTIMATED INHALANT ADDICTS BY AGE FOR BANGKOK

Age/Years	Persons	Percent
11 - 15	15	34.9
16 - 20	19	44.1
21 - 25	5	11.6
26 - 30	2	4.6
31 - 35	-	--
36 - 40	1	2.3
41 - 45	-	--
46 - 50	1	2.3
Total	43	100.0

Source: Manoj Leeto-chawalit, "Inhalant," Thailand Narcotics Journal, vol. 1, no. 1 (1985):60-70

TABLE 2

ESTIMATED INHALANT ADDICTS BY OCCUPATIONAL STATUS IN BANGKOK

Occupational Status	Persons	Percent
Pupil	25	58.1
Unemployed	11	25.6
Temporary Employment	1	2.3
Permanent Employment	6	4.0
Total	43	100.0

Source: Manoj Leeto-chawalit, "Inhalant," Thailand Narcotics Journal, vol. 1, no. 1 (1985):60-70.

TABLE 3

THAILAND'S COLLEGE-LEVEL RESPONDENTS TO QUESTIONS ON THINNER SNIFFING IN BANGKOK

College	Population	Percentage of Responses						School Years
		Ever Tried		Ever Tried within Last 12 Months		Ever Tried within Last 30 Days		
		Male %	Female %	Male %	Female %	Male %	Female %	
2. Northern Region	4,729	18.1	13.7	9.4	6.8	5.8	4.3	1977/78
1. Central Region	1,759	29.7	32.1	13.5	13.9	7.1	9.3	1977/78
2. Bangkok	3,825	27.0	21.0	13.1	13.0	8.4	7.9	1977/78
2. Central Region	2,781	24.4	25.7	10.1	10.3	3.6	2.5	1978/79
2. Bangkok	2,381	24.0	22.8	9.4	9.2	3.0	2.2	1978/79
2. Southern Region	3,146	13.9	9.4	6.6	3.4	2.2	0.8	1978/79

Source: Statistics of Narcotics Research Center, Medical Scientific Research Institute, Chulalongkorn University, 1977/78.

TABLE 4

VOCATIONAL COLLEGE STUDENTS INHALANT USE BY SEX AND REGION
(1979 SCHOOL YEAR)

	Northern			Northeastern			Southern			Central		
		Used During Last			Used During Last			Used During Last			Used During Last	
	Ever Used	12 Months	30 Days	Ever Used	12 Months	30 Days	Ever Used	12 Months	30 Days	Ever Used	12 Months	30 Days
Thinner												
Male	24.7	13.8	5.0	29.1	15.8	5.3	29.8	16.9	6.1	26.1	14.0	4.7
Female	19.0	6.8	1.4	19.8	9.7	1.1	14.4	4.0	1.3	17.7	6.1	1.3
Benzine												
Male	36.8	26.4	16.0	29.7	17.3	7.5	41.8	27.4	12.8	30.6	18.1	8.6
Female	37.7	19.1	6.8	28.6	13.3	3.0	30.2	13.9	3.4	3.4	8.6	2.1

Source: Statistics on Narcotics Research Center, Medical Scientific Research Institute, Chulalongkorn University, 1979.

According to Dr. Aroon Chaowanasai at Pra Mongutklao Hospital, there has been an increase in benzine sniffing among juveniles in Sattaheep downtown, while the number of juvenile heroin addicts is decreasing. Dr. Molliga Thachayapong at Thanyarak Hospital reported that twenty-seven thinner addicts were admitted there in 1980. The youngest one was nine years old, and the annual admissions of addicts is reported to have increased. Dr. Thongehai Oon-Ek-Larp at Thanyarak Hospital notes that the hospital intake of inhalant cases is a major youth problem.[18]

Several surveys show that there are many juvenile inhalant users in Bangkok between the age of ten and twenty years old. Use usually occurs in groups. These youths are reported to come from poor, affection-lacking families. Usually they have psychological problems. Furthermore, they are reported to be highly susceptible to peer pressure. Interviews of inhalant addicts in these studies showed that initiations were usually peer-induced, and that users did not know how dangerous inhalants were.[19] Puthi Mongkolcheep, in a study of twenty-two inhalant

---

[18]Thai Rat Newspaper, 9 February 1981 (p. 1).

[19]Preventive Education Division, "Basic Knowledge on Inhalant," Office of the Narcotics Control Board, 1981.

users, found the same results.[20]

In conclusion, though the data are inadequate and sketchy, numerous newspaper articles and studies suggest that inhalant use among youths is a social problem worthy of study in Thailand. There is a prevailing view that inhalant use is associated with inadequate family backgrounds; and, that inhalant use results in health and conduct problems. This thesis compares a study group of youthful habitual inhalant users with a sample of non-users in order to test some of these conjectures.

---

[20]Puthi Mongkolcheep and others, "The Study on the Problems of Inhalant Practices of Youth," Thailand Narcotics Journal, vol. 3, no. 2 (1981):40-65.

CHAPTER II

OBJECTIVES, OPERATIONAL DEFINITIONS AND HYPOTHESES

Objectives

The first objective was to compare a sample of inhalant users with a sample of non-users on two dimensions of study: 1) family background characteristics (parental and marital status, education, occupation, manners, relationships and income); and 2) deviant conduct other than the use of inhalants (fighting and disputes, absence without leave from school, fleeing from home, cigarette smoking, alcohol drinking, and being arrested by police). The second objective was to analyze the study sample's inhalant practices and opiate-use experiences. The third objective was to examine the relationships between family background variables and inhalant use.

Terminologies Used in This Research

The major operational definitions are as follows:

1) Inhalants - volatile solvents means odorous, easily evaporating liquids such as thinners, lacquers, benzines, lighter fuels, glues, vanishes, nail enamels, and aerosol sprays.

2) Inhalant practice - includes: a) inhalant practices of children and youths; b) experience of other drug abuse prior to inhalant initiation;

c) type of inhalant use and length of use; and
d) daily expense in acquiring inhalant.

3) Opiates - are addictive drugs made from opium or its derivative; e.g., morphine and heroin.

4) Major inhalants - includes thinners, lacquers and benzine sniffing.

5) Family background - is defined in terms of the following variables: parental marital status, manners, education, occupation, income, and relationships.

6) Marital status - means current marital status of parents living together, divorced, separated, or widowed.

7) Education - means parents maximum years of education.

8) Occupation - means activities to earn a living, comprising five categories:

   a) Housewives - are working females with no other outside work.

   b) Laborers - include agricultural workers, manual laborers, construction laborers, farmers, gardeners, planters, tailors, barbers, daily workers, hawkers and domestic servants.

   c) Merchants - are operators of privately-owned-businesses.

   d) Employees - are those having permanent employment with companies or government enterprises with fixed salaries.

   e) Government employees - are civil servants working in government service on annual salary.

9) Family income - is monthly combined income of both parents or monthly income of either one if the other has none.

10) Parents' manners - behaviors and activities of parents, which may be either positive or negative.

11) Relationship between father and mother - means feelings, actions, reactions and emotions of parents towards each other in daily life.

12) Childhood caretaker - means individual(s), besides parents who have cared for them one or more years.

13) Children care - means ways in which parents or caretaker(s) treat the children.

14) Number of siblings - is the number of siblings from the same parents.

Hypotheses

The three hypotheses that guided this research are as follows:

1) The family background of inhalant addicts are more negative than those of non-users in terms of the following variables: parents' marital status, education, occupation, manners, income, and relationships.

2) Inhalant addicts engage more frequently in deviant conduct exclusive of inhalant use than non-inhalant users, specifically: fighting and disputes, absence without leave from school, fleeing from home, cigarette smoking, alcohol drinking, and arrests by police.

3) There are significant relationships between specific family background variable and specific inhalant practices.

Research Variables

The independent variables are:

1) Characteristics of children and youths

   A) Sex

B) Age

C) Education

D) Number of siblings

E) Birth order

2) Children's and youth's family background

A) Parents' marital status

B) Parents' education

C) Parents' occupation

D) Parents' manners

E) Parents' relationship

F) Family's income

The dependent variables are:

1) Use of inhalant practice

A) Kind of inhalant

B) Daily expenses

C) Addicted

E) Use or Non-use of Opiates

2) Conduct of children and youths other than inhalant practice

A) Fighting and disputes

B) Absence without leave from school

C) Fleeing from home

E) Cigarette smoking

F) Alcohol drinking

G) Arrest by police

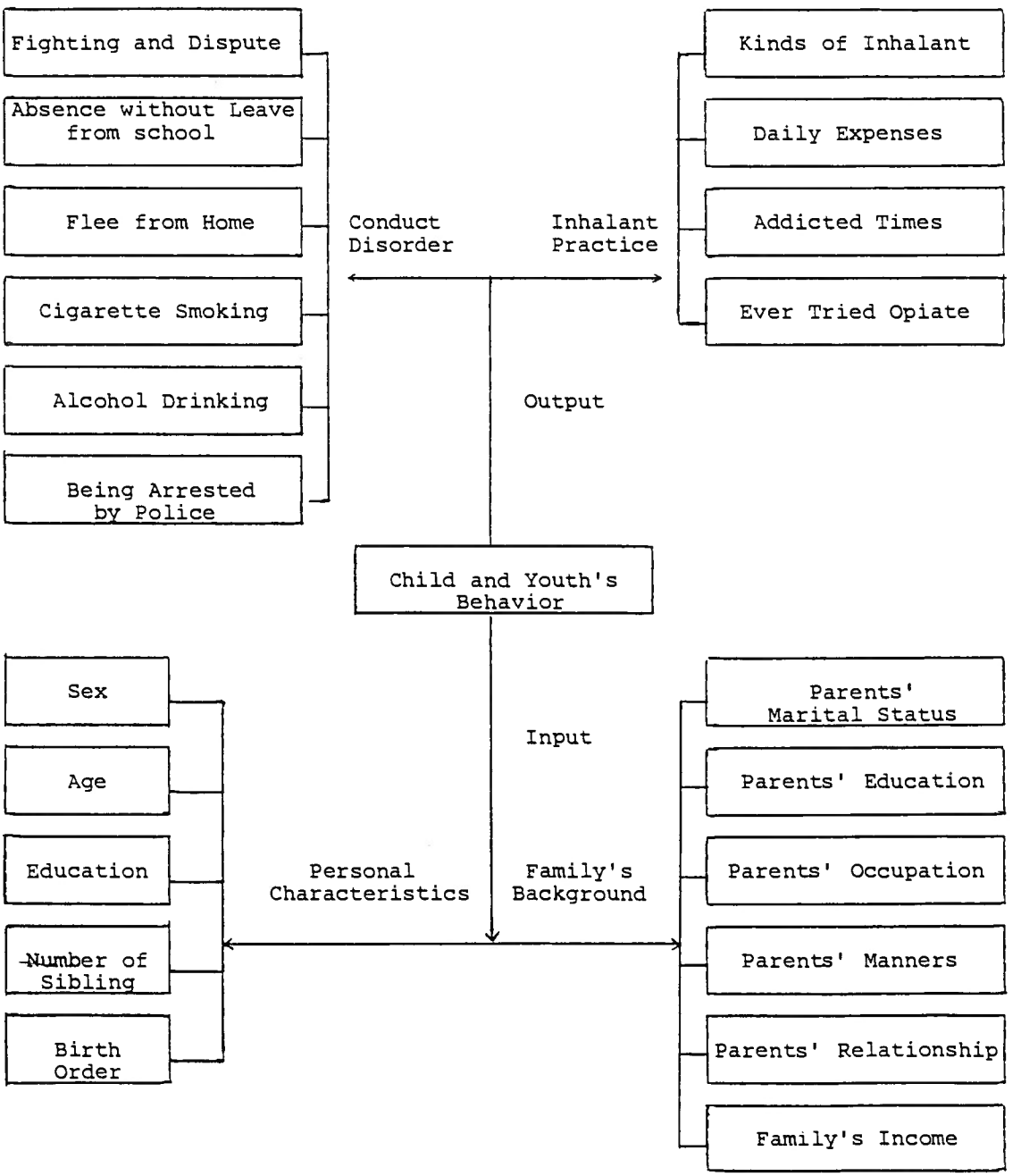
Figure 1 indicates the interactions of all the independent variables.

Scope of the Research

This study focuses on male and female youths residing in the Bangkok Metropolitan area who are addicted to inhalant practices. They are compared with a sample of non-users on family background characteristics: parents' marital status, parents' education, parents' occupation, parents' manners, parents' relationship and family's income. Youth inhalant use is also analyzed in terms of type of inhalant, length of practice, daily expenses involved and the use of other drugs prior to inhalant practices. Finally, the deviant conduct of users and non-users is compared; i.e., deviant practices other than the use of inhalants.

FIGURE 1

CONCEPTUAL FRAMEWORK



CHAPTER III

METHODOLOGY AND DATA COMPILATION

Type of Research Surveyed (Cross Sectional)

The study group comprised youths, both male and female, addicted to inhalant practice who were admitted for treatment at the Vajira and Thanyarak Hospitals during 1984, and all youth sentenced for rehabilitation to the Central House of Child Care during November 1984 with a history of inhalant practice. This total sample numbered 191. The control group comprised a sample group of youths who had never engaged in inhalant use enrolled in Bangkok Secondary Schools (under the General Education Department, Ministry of Education, Bangkok, Thailand) in November 1984 (N = 199).

Sampling Technique

Study Group

Youths in this group were purposely selected from hospital-admitted-inhalant-addicted patients and from the Central Training Home between October and November 1984

(N = 191). All hospital and training school residents were certified by medical doctors as inhalant addicts. All training school cases were committed for breaking the law.

The distribution of cases by source follows:

	Source	Number
1)	Vajira Hospital	34
2)	Thanyarak Hospital	14
3)	Ban Karvna Training School	80
4)	Ban Prance Training School	14
5)	Ban Mutita Training School	17
6)	Ban Ubetcha Training School	32
	Total	191

Control Group

This group was selected in the following three stages:

Stage 1: By simple random selection two out of eight educational districts in Bangkok were chosen, i.e., the second and the eighth districts.

Stage 2: Two secondary schools under the Ministry of Education were selected at random from these respective districts: Wat Raja Oros School for the eighth district, and Wat Benjama Borpit for the second district.

Stage 3: Utilizing systematic random sample selection in each class from MS.3, 4 and 5 (equivalent to grades 10, 11 and 12 in U. S. A.) in both schools (Wat Roja Oroa and Wat Benjama Borpit), 199 students (30 females and 169 males) were selected for the study.

Data Collection

The survey instrument utilized in this research was an interview schedule questionnaire structured in three parts:

Part 1: Family socioeconomic and background variables;

Part 2: Deviant Conduct Exclusive of Inhalant Practice; and

Part 3: Information on inhalant practice.

This interview instrument was administered by the Medical Scientific Research Institute of Chulalongkorn University in Bangkok. The data were collected via one-hour personal interviews by six trained interviewers at the master's level. All were employees of the Medical Scientific Research Institute, Chulalongkorn University. Interviews were conducted with all respondents during November 1984. The study group members were individually interviewed at the two hospitals and at the training schools; the control group members were interviewed at

their respective schools during school hours. The data thus collected were tabulated by the Medical Scientific Research Institute. This thesis utilizes part of the tabulated data to test the three study hypotheses.

Table 5 shows the comparison of study and control groups by age, number of siblings, birth order, race, religion and occupation. Table 6 shows the comparison of study and control groups of family background variables. The chi-square comparison of study groups and control groups by family and background variables is shown in Table 7.

TABLE 5

COMPARISON OF STUDY AND CONTROL GROUPS BY AGE, NUMBER OF SIBLINGS, BIRTH ORDER, RACE, RELIGION AND OCCUPATION

	Study Group		Control Group	
Variable	Number	%	Number	%
Total	191	100.0	199	100.0
Sex				
Male	176	92.1	169	84.9
Female	15	7.9	30	15.1
Age				
11-15 years	37	19.4	54	27.1
16-20 years	154	80.6	145	72.9
Number of Sibling				
1-2 persons	18	9.4	44	22.1
3-4 persons	76	39.8	81	40.7
5-6 persons	68	35.6	51	25.6
7-9 persons	16	8.4	17	8.5
≥ 10 persons	13	6.8	6	3.1
	$\bar{x}$ = 5.3 SD = 4.7		$\bar{x}$ = 4.2 SD = 2.1	
Birth Order				
1	49	25.7	63	31.7
2	57	29.8	50	25.1
3	30	15.7	34	17.1
4	16	8.4	19	9.6
5	39	20.4	33	16.5
	$\bar{x}$ = 3.0 SD = 2.2		$\bar{x}$ = 2.7 SD = 1.9	
Race				
Thai	191	100.0	191	96.0
Chinese	--	--	8	4.0

TABLE 5 - Continued

Variable	Study Group		Control Group	
	Number	%	Number	%
Total	191	100.0	199	100.0
Religion				
Buddhist	181	94.8	197	99.0
Christian	2	1.0	2	1.0
Muslim	8	4.2	--	--
Education				
Illiterate	9	4.7	--	--
Pratom 1-4	70	36.6	--	--
Pratom 5-MS. 3	96	50.3	34	17.1
MS. 4 above	16	8.4	165	82.9
Occupation				
No occupation	86	45.0	--	--
Unskilled employee	77	40.3	--	--
Trader	4	2.1	--	--
Student	24	12.6	199	100.0

Source: Statistics on Narcotics Research Center, Medical Scientific Research Institute, Chulalongkorn University, 1984.

TABLE 6

COMPARISON OF STUDY AND CONTROL GROUPS ON FAMILY BACKGROUND VARIABLES

Variable	Study Group Number	%	Control Group Number	%	X^2	P-Value
Total	191	100.0	199	100.0		
Marital Status					48.338	< 0.001
Live together	105	54.9	173	86.8		
Temporarily separate	15	7.9	7	3.6		
Divorced	38	19.9	7	3.6		
Widowed	33	17.3	12	6.0		
Living Status					11.667	< 0.008
Both are alive	161	84.3	188	94.5		
Father was deceased	22	11.5	9	4.5		
Mother was deceased	5	2.6	2	1.0		
Both were deceased	3	1.6	--	--		
Father's Education					39.506	< 0.001
Illiterate	6	4.6	1	0.6		
Pratom 1-4	78	58.6	64	33.5		
Pratom 5-MS. 3	33	24.8	48	25.1		
MS. 4 above	16	12.0	78	40.8		

Note. No answer: Study Group - 58 cases and Control Group - 8 cases

TABLE 6 - Continued

Variable	Study Group Number	%	Control Group Number	%	X^2	P-Value
Total	191	100.0	199	100.0		
Mother's Education					40.226	< 0.001
Illiterate	14	9.9	2	1.1		
Pratom 1-4	104	73.8	103	54.5		
Pratom 5-MS. 3	20	14.2	39	20.6		
MS. 4 above	3	2.1	45	23.8		
Note. No answer:	Study Group - 50 cases and Control Group - 10 cases					
Family Income					35.761	< 0.001
< 2,000	15	7.9	1	0.5		
2,000 - 3,900	45	23.6	31	15.6		
4,000 - 5,900	55	28.8	44	22.1		
6,000 - 10,000	64	33.5	79	39.7		
≥ 10,000	12	6.2	44	22.1		
	$\bar{x}$ = 6089.7 SD = 10,009		$\bar{x}$ = 7582.2	SD = 4952.0		
Number of Family Members					16.604	< 0.002
1 - 2	5	2.6	2	1.0		
3 - 4	37	19.4	56	28.1		
5 - 6	62	32.5	85	42.7		
7 - 9	66	34.5	47	23.6		
≥ 10	21	11.0	9	4.6		

TABLE 6 - Continued

Variable	Study Group Number	%	Control Group Number	%	X^2	P-Value
Total	191	100.0	199	100.0		
Father's Occupation					44.539	< 0.001
Government officer & enterprise employee	33	19.2	63	32.6		
Unskilled employee	106	61.6	54	28.0		
Trader, peasant	33	19.2	76	39.4		
Note. No answer: Study Group - 19 cases and Control Group - 6 cases						
Mother's Occupation					57.567	< 0.001
Government officer & enterprise employee	7	3.9	28	14.3		
Unskilled employee	137	74.4	104	53.0		
Trader, peasant, housewife	40	21.7	64	32.7		
Note. No answer: Study Group - 7 cases and Control Group - 3 cases						

Source: Statistics on Narcotics Research Center, Medical Scientific Research Institute, Chulalongkorn University, 1984.

TABLE 7

CHI-SQUARE COMPARISON OF STUDY GROUP AND CONTROL GROUP BY FAMILY BACKGROUND VARIABLES

Variable	Study Group Number	%	Control Group Number	%	X^2	P-Value
Total	191	100.0	199	100.0		
Parental Relationship					101.641	< 0.001
Affectionate	25	13.3	107	54.9		
They quarrel sometime	86	45.7	70	35.9		
They quarrel frequently	67	35.6	6	3.0		
Don't know	10	5.4	12	6.2		
**Note. No answer: Study Group - 3 cases and Control Group - 4 cases						
Relationship between Siblings					82.851	< 0.001
Highest	10	5.2	54	28.6		
High	32	16.8	71	37.6		
Moderate	122	63.9	56	29.6		
Low	23	12.0	4	2.1		
Lowest	4	2.1	4	2.1		
**Note. No answer. Study Group - cases and Control Group - 10 cases						
Current Residence					48.844	< 0.001
Parent	105	56.0	138	70.1		

TABLE 7 - Continued

Variable	Study Group Number	%	Control Group Number	%	X^2	P-Value
Total	191	100.0	199	100.0		
Current Residence (Cont'd)						
Father	16	8.6	1	0.5		
Mother	34	18.2	16	8.1		
Sibling	5	2.7	11	5.6		
Relative	11	5.7	21	10.7		
Friend	14	7.6	--	--		
Rented house	1	0.6	3	1.5		
Wat	1	0.6	7	3.5		
**Note. No answer. Study Group - 4 cases and Control Group - 2 cases						
Childhood Caretakers					4.849	< 0.001
Parent	137	71.7	159	79.9		
Father	2	1.1	2	1.0		
Father and relative	4	2.1	1	0.5		
Mother	10	5.2	6	3.1		
Mother and relative	14	7.3	18	9.0		
Relative	23	12.1	12	6.0		
Others	1	0.5	1	0.5		
Personal Problem Consultation					76.239	< 0.001
Parent	13	6.8	88	44.2		
Father	2	1.1	1	0.5		

TABLE 7 - Continued

Variable	Study Group Number	%	Control Group Number	%	X^2	P-Value
Total	191	100.0	199	100.0		
Personal Problem Consultation (Cont'd)						
Father and relative	6	3.0	8	4.0		
Mother	27	14.1	5	2.5		
Mother and relative	41	21.5	35	17.6		
Relative	35	18.3	29	14.6		
Teacher	2	1.1	5	2.5		
Friend	65	34.1	28	14.1		
Happiness Derived from Child Care					107.485	< 0.001
Very much	35	18.3	140	70.4		
Fairly happy	138	72.3	55	27.6		
Very little	18	9.4	2	2.0		
How the Children Were Brought Up During Their Childhood					71.054	< 0.001
Very strict	17	8.9	58	29.2		
Moderately	116	60.7	137	68.8		
Inattentively	58	30.4	4	2.0		

Source: Statistics on Narcotics Research Center, Medical Scientific Research Institute, Chulalongkorn University, 1984.

CHAPTER IV

RESULTS

The results of this analysis are presented in seven parts as follows:

1) General characteristics of sampled groups;

2) Family socioeconomic and background variables;

3) Parents' manners;

4) Deviant conduct history exclusive of inhalant use;

5) Knowledge on inhalant and experience of inhalant practices;

6) Opiate using experience of inhalant addicts; and

7) Relationship of family background variable to kind of inhalant, daily expense, addicted time and prior opiate use.

General Characteristics of Sample Groups

The sample population is divided into two groups: a) study group - 191 persons; and b) control group - 199 persons. Both groups have no significant different distribution in terms of sex, age, race and religion. See Table 5 on page 25 for the outcome of this analysis.

Sex. The study group comprises 176 males (92.1 percent) and 15 females (7.9 percent). The control group

comprises 169 males (84.9 percent) and 30 females (15.1 percent).

Age. The number of those between sixteen to twenty years in the study and control groups are relatively close--80.6 and 72.9 percent, respectively. For sample, population between eleven and fifteen years of age, nineteen of those in the study group were between eleven and fifteen years old; 27.1 percent in the control group.

Number of Siblings. Most cases in the study and control groups, 39.8 and 40.7 percent, respectively, have three to four siblings. For those who have one to two siblings: 22.1 percent in the control group, and 9.4 percent in the study group. For large families of more than ten siblings: 6.8 percent in the study group, and only 3.1 percent in the control group. The average number of siblings is 5.3 in the study group, and 4.2 in the control group.

Birth Order. In the study group 29.8 percent are in the second birth order; 31.7 percent of the control group are in the first birth order.

Race. Most of the sample population in the study and control groups is Thai (100.0 and 96.0 percent, respectively).

Religion. The majority of both groups are Buddhists, 94.8 percent in the study group and 99.0 percent in the

control group. Christians represent 1.0 percent in both groups and Moslems represent 4.2 percent in the study group and none in the control group.

Education. In the study group, 50.3 percent have an educational background of between Prathom five and Matthayom three, followed by 36.6 percent between Prathom one and four. In the control group, only Matthayom three to five students are selected.

Occupation. In the study group, 45.0 percent have no occupation and 40.3 percent are unskilled employees. All control group cases are students.

Family Socioeconomic and Background Variables

Analysis results of the family backgrounds of inhalant addicts cover fifteen variables: marital status, living status, father's education, mother's education, family's income, number of siblings, father's occupation, mother's occupation, parents' relationship, relationship between siblings, current residence, childhood caretakers, personal problem consultation, happiness derived from child care, how the children were brought up during their childhood. The differences in these historical variables between the study and control groups reveal the following (see Tables 6 and 7).

Parental Marital Status. Intact marriage: study group 54.9 percent, control group 86.8 percent; divorced: study group 19.9 percent, control group, 3.6 percent. The statistical test reveals a significant difference of $P < 0.001$.

Parental Living Status. Most parents of study and control groups are still alive--84.3 and 94.5 percent, respectively.

Father's Education. Study group - 58.6 percent Prathom one to four; 12.0 percent Matthayom four and above; control group 33.5 percent Prathom one to four, 40.8 percent Matthayom four and above. The statistical test reveals a significant difference of $P < 0.001$.

Mother's Education. Study group - 73.8 percent Prathom one to four, 14.2 percent Prathom five through Matthayom three, 9.9 percent uneducated and only 2.1 percent Matthayom four and above; control group 54.5 percent Prathom one through four, 23.8 percent Matthayom four and above, 20.6 percent Prathom five - Matthayom three, and only 1.1 percent uneducated. The statistical test reveals a significant difference of $P < 0.001$.

Family's Income. Study group - 33.5 percent 6,000 to 10,000 baht, 28.8 percent 4,000 to 5,900 baht, and 23.6 percent 2,000 to 3,900 baht. The mean monthly income is 6,089.7 baht, and SD is 10,009; control group 22.1 percent

4,000 to 5,900, 39.7 percent 6,000 to 10,000 baht. The mean monthly income is 7,582.2 baht; SD is 4,952.0. The statistical test reveals a significant difference of $P < 0.001$.

Number of Family Members. Study group 34.5 percent, seven to nine person, 32.5 percent, five to six persons, 19.4 percent, three to four persons, 11.0 percent, 10 persons and above, and 2.6 percent, one to two persons. The control group 42.7 percent four to six persons, 28.1 percent three to four persons, 23.6 percent seven to nine persons, and only 4.6 percent ten persons and above. The statistical test reveals a significant difference of $P = 0.002$.

Father's Occupation. Study group - 61.6 percent laborers, 19.2 percent traders, 19.2 percent government workers; control group 39.4 percent traders, 28.0 percent laborers, and 32.6 percent government workers. The statistical test reveals a significant difference of $P < 0.001$.

Mother's Occupation. Study group - 74.4 laborers, 21.7 percent housewives and traders, 3.9 percent government workers; control group 53.0 laborers, 32.7 percent traders, and 14.3 percent government workers. The statistical test reveals a significant difference of $P < 0.001$.

Parental Relationship. Parents' quarrel from time to time: study group 45.7 percent; control group 35.9

percent. Frequent disputes: study group 35.6 percent; control group 3.0 percent. Parents are affectionate: study group 13.3 percent; control group 54.9 percent. The statistical test reveals a significant difference of $P < 0.001$.

Relationship Between Siblings. The majority (63.9 percent) of those in the study group are moderately conciliatory, while 16.8 percent are very conciliatory. In the control group, 37.6 percent are very conciliatory and 29.6 percent moderately conciliatory. The statistical test reveals a significant difference of $P < 0.001$.

Current Residence. In the study group, 56.0 percent currently reside with their parents, 5.7 percent with relatives and 7.6 with friends, while in the control group 70.1 percent currently reside with their parents and 10.7 percent with relatives. The statistical test reveals a significant difference of $P < 0.001$.

Childhood Caretakers. The majority in both groups are taken care of by parents: 71.7 percent in the study group and 79.9 percent in the control group. Only 12.1 percent in the study group and 6.0 percent in the control group are taken care of by relatives.

Personal Problem Consultation. Most in the study group (34.1 percent) turn to their friends for consultation, while 14.1 percent of the control group will do so.

Forty-four percent of the control group turn to their parents. Alternatively, 21.5 percent of the study group and 17.6 percent of the control group turn to their mothers and other relatives. The statistical test reveals a significant difference of $P < 0.001$.

Happiness Derived from Child Care. In the study group 72.3 percent received moderate happiness and 18.3 percent received much happiness. In the control group 70.4 percent received much happiness; 27.6 percent received moderate happiness. Only 2.0 percent received unhappiness. The statistical test reveals a significant difference of $P < 0.001$.

How the Children Were Brought Up During Their Childhood

Of the study group, 60.7 percent were brought up moderately well; 68.8 percent of the control group moderately well. Thirty-one percent of the study group were brought up inattentively and 2.0 percent of the control group were brought up inattentively. Nine percent of the study group and 29.2 of the control group were brought up strictly. The statistical test reveals significant difference $P < 0.001$.

History of Parents' Manners

The history of parents' manners for children and youths in study and control groups are shown in Table 8.

TABLE 8

CHI-SQUARE TEST COMPARISON OF STUDY AND CONTROL GROUPS BY PARENTS' MANNERS

	Study Group		Control Group			
	%	N	%	N	N^2	P-Value
Father's Manner					3.389	< 0.001
Appropriate	35.6	63	71.5	138		
Inappropriate	64.4	114	28.5	55		
Total	100.0	177	100.0	193		
Mother's Manner					4.669	< 0.001
Appropriate	55.2	100	73.5	144		
Inappropriate	44.8	81	27.0	53		
Total	100.0	181	100.0	197		

Source: Statistics on Narcotics Research Center, Medical Scientific Research Institute, Chulalongkorn University, 1984.

Father's Manners. Father's manners, in the control group were more appropriate, positive and acceptable than were those of the study group. The statistical test reveals a significant difference of $P < 0.001$.

Mother's Manners. A high percentage of study group members (55.2), and control group (73.5) indicated that their mother's manners were appropriate, and positive and acceptable. The statistical test reveals a significant

difference of $P < 0.001$. Details of the parents' manners differences are shown in the Appendix, Tables 22 and 23.

History of Conduct Disorder

The results concerning conduct disorder of both groups reveal the following (see Table 9).

Fighting and disputes. Of the study group 16.7 percent reported fighting and disputes, whereas only 1.5 percent of the control group reported such action. The statistical test reveals a significant difference of $P < 0.001$.

Absence without Leave from School. The majority, (36.9 percent) of the study group reported absence without leave from school frequently, whereas the control group reported only 1.0 percent for the variable. The statistical test reveals a significant difference of $P < 0.001$.

Fleeing from Home. Of the study group 24.1 percent reported fleeing from home often. The control group reported 1.5 percent fleeing from home often. The statistical test reveals a significant difference of $P < 0.001$.

Cigarette Smoking. Of the study group (59.7 percent) and control group (1.5 percent) reported frequent to cigarette smoking. The statistical test reveals a significant difference of $P < 0.001$.

Alcohol Drinking. Of the study group, 7.3 percent, and of the control group, 1.5 percent, reported frequent

alcohol drinking. The statistical test reveals a significant difference of $P < 0.001$.

Police Arrests. Of the study group, 76.4 percent, and of the control group, 3.5 percent, reported being arrested frequently by the police. The statistical test reveals a significant difference of $P < 0.001$.

Table 9 shows the conduct disorders of the study and control groups.

Study Group's Knowledge of Inhalant

Knowledge of Inhalant. Most of the addicts knew very well about the harmful toxic effects of inhalants (lacquer 62.3 percent, thinner, 40.8 percent, Benzine, 33.0 percent). See Table 10 for details.

Ever Tried Inhalant. Most used lacquer practice, 88.5 percent, followed by thinner practice, 39.3 percent, and then benzine practice, 20.4 percent. At time of interviews 4.7 percent continued to use lacquer, 12.0 percent thinner, and 33.3 percent benzine (see Table 10).

History of Inhalant Practice (see Table 11).

1) Cause of initiation: 47.6 percent reported they were persuaded to use it by friends; 43.4 percent wanted to try it, and 7.9 percent used it as a means of solving or escaping problems.

2) Source of inhalant: 78 percent bought it from paint and construction material stores, 17.3 percent received it from peers, and 3.1 percent bought it from hawkers.

TABLE 9

COMPARISON OF STUDY AND CONTROL GROUPS BY TYPES OF DEVIANT CONDUCT OTHER THAN INHALANT USE

	Study Group N	%	Control Group N	%	X^2	P-Value
Fighting and Disputes					36.551	< 0.001
Never	38	19.9	76	38.2		
Sometimes	121	63.4	120	63.3		
Often	32	16.7	3	1.5		
Absence without Leave from School					145.284	< 0.001
Never	19	10.2	125	62.8		
Sometimes	99	52.9	72	36.2		
Often	69	36.9	2	1.0		
Fleeing from Home					182.708	< 0.001
Never	46	24.1	182	91.5		
Sometimes	99	51.8	14	7.0		
Often	46	24.1	3	1.5		
Cigarette Smoking					201.823	< 0.001
Never	26	13.6	158	79.4		
Sometimes	51	26.7	38	19.1		
Often	114	59.7	3	1.5		
Alcohol Drinking					42.4421	< 0.001
	77	40.3	144	72.4		
Never	100	52.4	52	26.1		
Sometimes	14	7.3	3	1.5		
Often						
Being Arrested by Police					214.338	< 0.001
Yes	146	76.4	7	3.5		
No	45	23.6	192	90.5		
Total	191	100.0	199	100.0		

Source: Statistics on Narcotics Research Center, Medical Scientific Research Institute, Chulalongkorn University, 1984.

TABLE 10

KNOWLEDGE AND PRACTICE OF INHALANT TYPE

Variables	Lacquer N	Lacquer %	Thinner N	Thinner %	Benzine N	Benzine %
Total	191	100.0	191	100.0	191	100.0
Knowledge						
Harmless	2	1.1	--	--	--	--
Least Harmful	35	18.3	31	16.2	32	16.8
Harmful	119	62.3	78	40.8	63	33.0
Most Harmful	6	3.1	17	8.9	7	3.7
Don't Know	29	15.2	65	34.1	89	46.5
Practice						
Ever Tried	169	88.5	75	39.3	39	20.4
Never Tried	22	11.5	116	60.7	152	79.6
If Ever Tried						
Quit as of Now	161	95.3	66	88.0	26	66.7
Still Practicing	8	4.7	9	12.0	13	33.3
Total	169	100.0	75	100.0	39	100.0

Source: Statistics on Narcotics Research Center, Medical Scientific Research Institute, Chulalongkorn University, 1984.

TABLE 11

HISTORY OF INHALANT PRACTICES

Variables Studied on Inhalant Addicts	N	%
Total	191	100.0
Cause of Initiation		
Was deluded into it	--	--
Wanted to try it	85	43.4
Persuaded by peers or acquaintances	91	47.6
Wanted to solve or escape problems	15	7.9
Others	2	1.1
Source of Inhalant		
Given by peers	33	17.3
Bought from hawkers	6	3.1
Bought from paint and construction material stores	149	78.0
Others	3	1.6
Location of Inhalant Practice		
Residential area	29	15.2
Rest room	3	1.6
A dark corner	129	67.5
Others	30	15.7
Craving Times		
In the mornings	14	7.3
During the day time	55	28.8
In the evening	80	41.9
At night	33	17.3
Others	9	4.7
Parents' Awareness of Their Children's Inhalant Practice		
No idea whether they know or not	2	1.1

TABLE 11 - Continued

Variables Studied on Inhalant Addicts	N	%
Not at all	55	28.8
May know a little	21	10.9
Knew very well	111	58.1
Other	2	1.1
Parents' or Guardian's Reaction		
Nothing	7	5.1
Counseling	2	1.5
Threatening of punishment	7	5.1
Punishment	26	19.1
Taking for treatment	42	30.9
Other	52	38.3
Total	136	100.0
Daily Expenses in Acquiring Inhalant		
1 - 10 bahts	123	64.2
11 - 20 bahts	52	27.2
21 - 30 bahts	12	6.3
> 30 bahts	4	2.1
	$\bar{x}$ = 11.5, SD = 9.0	
Duration of Inhalant Practice		
1 - 10 months	102	53.5
11 - 20 months	56	29.3
21 - 30 months	22	11.5
31 - 40 months	6	3.1
41 - 50 months	4	2.1
51 - 60 months	1	0.5
	$\bar{x}$ = 14.9, SD = 10.7	
Continuity of Inhalant Practice		
Are you practicing now?		
Yes	26	13.6
No	165	86.4

TABLE 11 - Continued

Variables Studied on Inhalant Addicts	N	%
Total	191	100.0
Have you ever discontinued?		
Yes	14	53.8
No	12	46.2
Total	26	100.0
What was the reason for discontinuing the practice		
Had "bad trips" after sniffing	3	21.5
Was afraid of being arrested by police	5	35.7
Was afraid of its harm	1	7.1
Felt having tried it enough	2	14.2
Was forced by whom to quit	3	21.5
Total	14	100.0
What was the reason to resume practice		
Having many personal problems	3	21.4
Having many family problems	4	28.6
Feeling good sniffing it	5	35.7
Seeing no harm	2	14.3
Total	14	100.0

Source: Statistics on Narcotics Research Center, Medical Scientific Research Institute, Chulalongkorn University, 1984.

3) Location of inhalant practice: 67.5 percent reported using inhalants in dark places out of sight of others and 15.2 percent reported using them in residential areas.

4) Craving times: Most of the addicts reported inhalant practices in the evening. Only 28.8 percent reported inhalant practices during the daytime.

5) Parents' awareness: 58.1 percent of the parents were aware, 10.9 percent were not aware, and 28.8 percent did not know. In cases where the parents were aware, their reactions to their children were: 30.9 percent sought treatment, 19.1 percent punished, 5.1 percent threatening to punish, 1.5 percent sought counseling, and 5.1 percent did nothing.

6) Daily expenses in acquiring inhalant: 64.2 percent spent less than ten baht per day and 27.2 percent spent eleven to twenty baht per day. The average daily expense is 11.5 baht (one baht = four cents in American money).

7) Duration of inhalant practice: 53.5 percent had practiced for one to ten months, 29.3 percent had practiced for eleven to twenty months. The average duration of inhalant practice was 14.9 months.

8) Continuity of inhalant practice: 86.4 percent had discontinued, and 13.6 percent still practiced. Of the practicing group, 53.8 percent had discontinued at one time or another, and 46.2 percent had never discontinued.

9) Reasons for discontinuation are: 35.7 percent were afraid of being arrested by the police, 21.5 percent had "bad trips" and/or were forced to quit, 14.2 percent felt having tried it was enough, and 7.1 percent were afraid of health harm.

10) Reasons for resumption: 35.7 percent felt good sniffing it, 28.6 percent used it because of family problems, 21.4 percent claimed personal problems, and 14.3 percent envisaged no harm for resuming the practice.

Opiate Use

Only 5.8 percent of the addicted inhalants had ever tried an opiate. Opiate using experience of inhalant addicts is shown in Table 12.

The Relation Between the Type of Inhalant Practice and the Family Background Variables

There is no association between the kinds of inhalant practice and family background variables (for details see Appendix, Table 18). Table 13 shows the chi-square test of inhalant practice by six components of family background. There is no association found between the daily expenses and family background variables (see Appendix, Table 19 for details). Table 14 shows the chi-square test results of the relationship between family background variables and their daily inhalant expenses. There is no association between addicted times and family background variables (see Appendix, Table 20 for details.). Table 15 shows the chi-square of inhalant addicts of six components of family background variables and addicted time. Only one variable, parents' occupation, is associated with the history of ever trying opiates among the inhalant addicts. (For details see Appendix, Table 21). Table 16 shows the chi-square test of the relationshp between family background

TABLE 12

PERCENTAGE OF INHALANT ADDICTS WHO HAD EVER TRIED OPIATES PRIOR TO INHALANT INITIATION

Variable	Study Group N	%
Total	191	100.0
Have you ever tried opiates?		
Yes	11	5.8
No	180	94.2

Note: All of them are heroins only.

Source: Statistics of Narcotics Research Center, Medical Scientific Research Institute, Chulalongkorn University, 1984.

TABLE 13

CHI-SQUARE TEST OF INHALANT PRACTICE IN RELATIONSHIP TO FAMILY BACKGROUND VARIABLES

Family Background Variable	X^2	DF	P-Value
1) Parents' marital status	0.461	2	0.797
2) Father's education	1.697	2	0.444
Mother's education	0.515	2	0.775
3) Father's occupation	3.806	4	0.445
Mother's occupation	1.357	2	0.509
4) Father's manners	1.038	2	0.607
Mother's manners	0.431	2	0.809
5) Parents' relationship	0.518	2	0.773
6) Family's income	0.751	2	0.696

Source: Statistics of Narcotics Research Center, Medical Scientific Research Institute, Chulalongkorn University, 1984.

TABLE 14

FAMILY BACKGROUND VARIABLES IN RELATIONSHIP TO DAILY INHALANT EXPENSE AS TESTED BY CHI-SQUARE

Family Background Variable	X^2	DF	P-Value
1) Parents' marital status	3.779	1	0.053
2) Father's education	1.021	1	0.337
Mother's education	0.568	1	0.467
3) Father's occupation	3.400	2	0.199
Mother's occupation	1.463	2	0.486
4) Father's manners	0.542	1	0.475
Mother's manners	0.521	1	0.481
5) Parents' relationship	1.818	1	0.196
6) Family's income	1.845	1	0.194

Source: Statistics of Narcotics Research Center, Medical Scientific Research Institute, Chulalongkorn University, 1984.

variables and a history of ever trying opiates. The hypotheses testing results are shown in Table 17.

TABLE 15

CHI-SQUARE TEST OF RELATIONSHIP OF FAMILY BACKGROUND VARIABLES TO THE NUMBER OF ADDICTED TIMES

Family Background Variable	X^2	DF	P-Value
1) Parents' marital status	2.041	1	0.172
2) Father's education	1.088	1	0.318
Mother's education	0.171	1	0.701
3) Father's occupation	5.688	2	0.061
Mother's occupation	3.335	2	0.204
4) Father's manners	0.290	1	0.617
Mother's manners	0.665	1	0.438
5) Parents' relationship	0.002	1	0.999
6) Family's income	0.879	2	0.656

Source: Statistics of Narcotics Research Center, Medical Scientific Research Institute, Chulalongkorn University, 1984.

TABLE 16

CHI-SQUARE TEST OF THE RELATIONSHIP BETWEEN FAMILY BACKGROUND VARIABLES AND A HISTORY OF EVER TRYING OPIATES

Family Background Variable	X^2	DF	P-Value
1) Parents' marital status	3.502	2	0.154
2) Father's education	1.057	2	0.601
Mother's education	0.029	1	0.959
3) Father's occupation	9.733	2	0.008
Mother's occupation	20.754	2	< 0.001
4) Father's manners	0.792	2	0.683
Mother's manners	0.391	2	0.826
5) Parents' relationship	5.134	2	0.081
6) Family's income	2.072	2	0.376

Source: Statistics of Narcotics Research Center, Medical Scientific Research Institute, Chulalongkorn University, 1984.

TABLE 17

HYPOTHESES TESTING RESULTS

Researched Hypotheses	Results	
	Agree	Disagree
Hypothesis 1:		
Family background of inhalant addict are more negative than those of the non-addicted.		
A) Parents' marital status	Agree	
B) Parents' education	Agree	
C) Parents' occupation	Agree	
D) Parents' manners	Agree	
E) Parents' relationship	Agree	
F) Family's income	Agree	
Hypothesis 2:		
Inhalant addicts are more frequently engaged in deviant conduct exclusive of inhalant use than are non-inhalant users.		
A) Fighting and disputes	Agree	
B) Absence without leave from school	Agree	
C) Fleeing from home	Agree	
D) Cigarette smoking	Agree	
E) Alcohol drinking	Agree	
F) Being arrested by police	Agree	

TABLE 17 - Continued

Researched Hypotheses	Results	
	Agree	Disagree
Hypothesis 3:		
There are significant relationships between specific family background variables and specific inhalant practices.		
A) Kinds of inhalants (lacquer, thinner and benzine)		Disagree
B) Daily expenses		Disagree
C) Addicted times of addicts		Disagree
E) Ever tried opiates.	Agree in 1 com-ponent	Disagree in 5 components

Source: Statistics of Narcotics Research Center, Medical Scientific Research Institute, Chulalongkorn University, 1984.

CHAPTER V

DISCUSSION

The Bangkok, Thailand population studied comprises 191 persons in the study group (inhalant addicts) and 199 persons in the control group (non-inhalant users). Only eleven of the 191 inhalant users had ever used the opiates (heroin).[1]

The hypotheses and results are as follows:

Hypothesis 1: Family backgrounds of inhalant addicts are more negative than those of non-addicted.

The study results on fifteen family backgrounds confirmed this hypothesis. When analyzed with chi-square tests, significant differences are revealed on all of these variables.

Marital Status of Parents

Comparisons of parental marital status show that inhalant families are more frequent among control group parents. Divorce rates are higher in the study group than

---

[1]Prapas Uaychai, The Role of Juvenile Court with National Security (Bangkok: Thammasart Printing Press, 1974), pp. 5-16.

in the control group. This significant difference was also reported by Puthi Mongkolcheep[2] who found that juvenile sniffers were frequently from broken homes.

Family problems are more frequently found among parents of the study group than the control group. This differential was also reported by the families of the control group were happier, more loving and more dependable than the families of the study group.

Educational Background of Parents

Most of the experimental group parents' education was lower than Prathom four level. Poor education made the parents fall short of knowledge, talents and experience necessary in making good lives. The majority of them, therefore, earned their living as laborers with low, inadequate income and poor security. The effect was inadequate family atmosphere such as limited living space, insufficient and inappropriate domestic equipments and food. This confirmed the studies undertaken by Duke in 1976, Stabenva and Follin in 1968,[3] and Jitra Fao-Sup in 1977.[4]

---

[2]Puthi Monkolcheep and Others, "The Study on the Problems of Inhalant Practice of the Youths," 1981.

[3]Ibid.

[4]Jitra Fao-Sup, "The Study on Attitude of Addicted Toward the Parent's Care," (M.A. thesis, Srinakharinwirot University, 1977).

Character of Parents

The study result confirmed this hypothesis (Table 8). Juvenile sniffers' parents' manners were found to be more inappropriate compared to those of the non-sniffers' parents. This was in conformation with studies undertaken by Otrakul,[5] Bhanthumnavin and Jaroenying[6]. Manners, personality and conduct of parents were among significant matters affecting conduct and personality development of youths.

Occupation and Income of Parents

Juvenile sniffers were from poor families. Their parents were laborers with low income. Poverty was one of the important factors contributing to juvenile inhalant practice and misconduct. The result of this study was similar to those undertaken by Glueck and Glueck in 1952[7]

---

[5]Amohorn Otrakul, "Thongyot Chaichana and Banchong Suesaman, "Factors Are Stressful to Pupils," The Journal of the Psychiatric Association of Thailand, vol. 28, no. 4 (October-December 1983):198-205.

[6]D. Bhanthumnavin and B. Jaroenying, "Social Influences Attitude," Research Report No. 18, Behavioral Science Research Institute, Srinakharinwirot University, 1974.

[7]Puthi Mongkolcheep and Others, "The Study on the Problems of Inhalant Practice of the Youth," 1981.

and Saowapa Watcharakitti in 1978.[8]

Relationships Between Father and Mother

The study results revealed that poor father-mother relationships did exist in most of juvenile sniffers' parents. Only 13.3 percent of the parents were found to have been enjoying affectionated relations. Father-mother relationships were the origin of relationship among family members, for which both the parents played a key role. If the parents loved, respected each other, and brought their children up with loving care, the children would tend to become good, happy adults. Children in inharmonious families would often be uncertain and would have difficulties adjusting themselves to surrounding situations. They might eventually become pessimistic and insincere. This confirmed the studies undertaken by Supatana[9] in 1973 and Grygier and others in 1969.[10]

Hypothesis 2: Inhalant addicts more frequently engage in deviant conduct exclusive of inhalant use than non-inhalant.

---

[8]Sauwapa Watharakittri, "The Problem of Child and Youth in Bangkok," The Report on Study Research, Kasetsart University, 1978.

[9]Tawatchai, Thai-Khiew, "The Etiology of Inhalant Abuse," M.A. thesis, Mahidol University, 1983.

[10]Puthi Mongkolcheep and others, "The Study on the Problems of Inhalant Practice of the Youth," 1981.

Social Conducts of Addicted and Non-Addicted

Table 9 shows that the addicted sample engaged more frequently in fighting, school truancy, fleeing from home, alcoholic drinking habit than did the non-addicted sample.

Hypothesis 3: There are significant relationship between specific family background variables and specific inhalant practices.

Addicted youths were divided into these categories: the kinds of inhalant, the daily expenses, ever tried opiates, and the chi-square test with six components of family backgrounds were also considered. The result was contradictory to the hypothesis (see Tables 13, 14, 15 and 16).

Thinner, the first favorite, was easy to buy and cheap (four to five bahts per 60 c.c.). It has a more pleasant smell than lacquer and left no yellow traces on the palms. Most of the addicted used benzine when they could not find thinner and lacquer. Youths who were in training-school-detention car services sniffed benzine from gasoline tanks. The daily expenses and period of addiction depended on habits, self-control, location, influence of friends and financial resources.

If they had ever tried opiates before thinner practice (Table 16), inhalants were used temporarily until

they could buy heroin. That is why the hypothesis of the interrelation between inhalants practice and the six components of family backgrounds was rejected. There is only one component of the family background, the occupation of parents, that shows a relationship to the history of ever having tried the opiates. Working parents of the study group had very little time to spend with their children. Frequently the children were permitted to run free on the streets with other delinquents and inhalant users. This negative influence in relationship to adolescent drug use has been noted by others.

Summary

The objectives of this study were as follows: 1) to determine the family background variables associated with inhalant use in Bangkok in comparison with the family background characteristics of non-users; and 2) to compare the deviant behaviors (other than inhalant use) of the study group with those of the control group. The sample consists of 191 Bangkok children and youths who use inhalants and 199 Bangkok secondary school children and youths who did not use inhalants and who were not delinquent. The investigation was conducted by questionnaire interviews. The statistical method used for analysis was the chi-square test.

The inhalants' family backgrounds in the study group varied from the non-users (control) on six family background components. Statistical significant difference at level $p < 0.01$ and $p < 0.001$ were: marital status, parents' living status, fathers' education, mothers' occupation, families' income, number of family members, and father's and mother's education. All of these were in negative direction for users, and have been found by other researchers.[11]

In comparing the deviant conduct of inhalant users and non-users, statistical significant differences at level $p < 0.001$ were found in fighting and disputes, absence without leave from school, fleeing from home, cigarette smoking, alcohol drinking and being arrested by the police--all in the negative direction for users.

Inhalant practice of inhalant users in four components (kinds of inhalant, daily expenses, times addicted and history of ever having tried opiates) were not found to be associated with the six family background components.

Study Implications

Hopefully this study may serve as a guide for further investigations into inhalant and/or other drug use in

---

[11]Udomsilp Shrisangnam, "Inhalants and Other Drugs," Research Report, Siriraj Hospital, Faculty of Medical Science, Mahidol University, 1984.

Bangkok. Clearly inhalant users used public educational programs geared toward inhalant and drug use and counselling. They also need public treatment programs manned by trained social workers. All children of school age, particularly the poor, need to be enrolled in a public school prevention and treatment program. Because the main predisposing problem of inhalant users appears to be the lack of proper parental supervision and street exposure, day care centers should be established for these unsupervised youths.

This research was confined primarily to family background variables. Personality characteristics were not considered. Certainly personality traits and personality structures are important in their relationships to deviant behaviors. Future studies should include a personality component. Inhalant users are not hard drug users and programs for them must differ from programs utilized for hard drug users. Inhalants may prove to be gateways to more serious drug usage, however this does not appear to be the case with these inhalant users under study.

APPENDIX

DATA COLLECTION FORM

TABLE 18

CHI-SQUARE TEST OF THE KIND OF INHALANT PRACTICE IN RELATIONSHIP TO FAMILY BACKGROUND VARIABLE

Variable	Kinds of Inhalant: Lacquer N	Lacquer %	Thinner N	Thinner %	Benzine N	Benzine %	X^2	df	P-Value
Parents' Marital Status							0.461	2	0.797
Living together	90	53.9	36	49.3	21	53.8			
Other	77	46.1	37	50.7	18	46.2			
Total	167	100.0	75	100.0	39	100.0			
Father's Education							1.697	2	0.444
≤ Pratom 4	73	61.3	34	64.2	15	50.0			
> Pratom 4	46	38.7	19	35.8	15	50.0			
Total	119	100.0	53	100.0	30	100.0			
Mother's Education							0.515	2	0.775
≤ Pratom 4	105	83.3	46	83.6	25	78.1			
> Pratom 4	21	16.7	9	16.4	7	21.9			
Total	126	100.0	55	100.0	32	100.0			
Father's Occupation							3.806	4	0.445
Government officer and enterprise employee	31	20.5	15	21.4	11	29.7			
Unskilled employee	92	60.9	40	57.1	23	62.2			
Trader, peasant	28	18.6	15	21.5	3	8.1			
Total	151	100.0	70	100.0	37	100.0			

TABLE 18 - Continued

Variable	Kinds of Inhalant: Lacquer N	Lacquer %	Thinner N	Thinner %	Benzine N	Benzine %	X^2	df	P-Value
Mother's Occupation							1.357	2	0.509
Government officer and enterprise employee	7	4.3	1	1.4	1	2.7			
Unskilled employee	121	74.7	51	70.8	30	81.1			
Trader, peasant, housewife	34	21.0	20	27.8	6	16.2			
Total	162	100.0	72	100.0	37	100.0			
Father's Manner							1.038	2	0.607
Appropriate	55	32.5	25	33.3	16	41.0			
Inappropriate	114	67.5	50	66.7	23	49.0			
Total	169	100.0	75	100.0	39	100.0			
Mother's Manner							0.431	2	0.809
Appropriate	90	53.3	41	54.7	23	59.0			
Inappropriate	79	46.7	34	54.3	16	41.0			
Total	169	100.0	75	100.0	39	100.0			
Parents' Relationship							0.518	2	0.773
Good relationship	95	56.2	46	61.3	23	59.0			
Quarrel some	61	36.1	24	32.0	15	38.5			
Unknown	13	7.7	5	6.7	1	2.5			
Total	169	100.0	75	100.0	39	100.0			
Family's Income							0.751	2	0.696
> 4,000	57	33.7	22	29.3	11	28.2			
≤ 4,000	112	66.3	53	70.7	28	71.8			
Total	169	100.0	75	100.0	39	100.0			

TABLE 19

FAMILY BACKGROUND VARIABLES IN RELATIONSHIP TO DAILY INHALANT EXPENSE AS TESTED BY CHI-SQUARE

Variable	Daily Expense: ≤ 10 Bahts	Daily Expense: > 10 Bahts	Total	N	X^2	df	P-Value
Parents' Marital Status					3.779	1	0.053
Living together	70.5	29.5	100.0	105			
Other	57.0	43.0	100.0	86			
Total	64.4	35.6	100.0	191			
Father's Education					1.021	1	0.337
≤ Pratom 4	60.7	39.3	100.0	84			
> Pratom 4	69.4	30.6	100.0	49			
Unknown	65.5	34.5	100.0	58			
Total	64.4	35.6	100.0	191			
Mother's Education					0.568	1	0.467
≤ Pratom 4	61.0	39.0	100.0	118			
> Pratom 4	69.6	30.4	100.0	23			
Unknown	70.0	30.0	100.0	50			
Total	64.4	35.6	100.0	191			
Father's Occupation					3.400	2	0.199
Government officer and enterprise employee	51.5	48.5	100.0	33			

TABLE 19 - Continued

Variable	Daily Expense ≤ 10 Bahts	> 10 Bahts	Total	N	X^2	df	P-Value
Father's Occupation Cont'd							
Unskilled employee	68.9	31.1	100.0	106			
Trader, peasant	66.7	33.3	100.0	33			
Unknown	57.9	42.1	100.0	19			
Total	64.4	35.6	100.0	191			
Mother's Occupation					1.463	2	0.486
Government officer and enterprise employee	42.9	57.1	100.0	7			
Unskilled employee	65.7	34.3	100.0	137			
Trader, peasant, housewife	65.0	35.0	100.0	40			
Unknown	57.1	42.9	100.0	7			
Total	64.4	35.6	100.0	191			
Father's Manner					0.542	1	0.475
Appropriate	60.3	39.7	100.0	68			
Inappropriate	67.0	33.0	100.0	109			
Unknown	64.3	35.7	100.0	14			
Total	64.4	35.6	100.0	191			

TABLE 19 - Continued

Variable	Daily Expense ≤ 10 Bahts	> 10 Bahts	Total	N	X^2	df	P-Value
Mother's Manner					0.521	1	0.481
Appropriate	66.3	33.7	100.0	104			
Inappropriate	61.0	39.0	100.0	77			
Unknown	70.0	30.0	100.0	10			
Total	64.4	35.6	100.0	191			
Parents' Relationship					1.818	1	0.196
Good relationship	52.0	48.0	100.0	25			
Quarrel some	66.0	34.0	100.0	153			
Unknown	69.2	30.8	100.0	13			
Total	64.4	35.6	100.0	191			
Family's Income					1.845	1	0.194
≤ 4,000	71.7	28.3	100.0	60			
> 4,000	61.1	38.9	100.0	131			
Total	64.4	35.6	100.0	191			

TABLE 20

CHI-SQUARE TEST OF RELATIONSHIPS OF FAMILY BACKGROUND VARIABLES TO THE NUMBER OF ADDICTED TIMES

Variable	Addicted Times ≤ 6 Months	> 6 Months	Total	N	X^2	df	P-Value
Parents' Marital Status					2.041	1	0.172
Living together	58.1	41.9	100.0	105			
Other	47.7	52.3	100.0	86			
Total	53.4	46.6	100.0	191			
Father's Education					1.088	1	0.318
≤ Pratom 4	47.6	52.4	100.0	84			
> Pratom 4	57.1	42.8	100.0	49			
Unknown	58.6	41.4	100.0	58			
Total	53.4	46.6	100.0	191			
Mother's Education					0.171	1	0.701
≤ Pratom 4	51.7	48.3	100.0	118			
> Pratom 4	56.5	43.5	100.0	23			
Unknown	56.0	44.0	100.0	50			
Total	53.4	46.6	100.0	191			
Father's Occupation					5.688	2	0.061
Government officer and enterprise employee	69.7	30.3	100.0	33			

TABLE 20 - Continued

Variable	Addicted Times ≤ 6 Months	> 6 Months	Total	N	X^2	df	P-Value
Father's Occupation Cont'd							
Unskilled employee	49.1	50.9	100.0	106			
Trader, peasant	42.4	47.6	100.0	33			
Unknown	68.4	31.6	100.0	19			
Total	53.4	46.6	100.0	191			
Mother's Occupation					3.335	2	0.204
Government officer and enterprise employee	57.1	42.9	100.0	7			
Unskilled employee	56.2	43.8	100.0	137			
Trader, peasant, housewife	40.0	60.0	100.0	40			
Unknown	71.4	28.6	100.0	7			
Total	53.4	46.6	100.0	191			
Father's Manner					0.290	1	0.617
Appropriate	59.1	41.9	100.0	62			
Inappropriate	53.9	46.1	100.0	115			
Unknown	28.6	71.4	100.0	14			
Total	53.4	46.6	100.0	191			

TABLE 20 - Continued

Variable	Addicted Times ≤ 6 Months	> 6 Months	Total	N	X^2	df	P-Value
Mother's Manner					0.665	1	0.438
Appropriate	56.2	43.8	100.0	104			
Inappropriate	50.0	50.0	100.0	77			
Unknown	50.0	50.0	100.0	10			
Total	53.4	46.6	100.0	191			
Parents' Relationship					0.002	1	0.999
Good relationship	52.0	48.0	100.0	25			
Quarrel some	51.6	48.4	100.0	153			
Unknown	76.9	23.1	100.0	13			
Total	53.4	46.6	100.0	191			
Family's Income					0.879	2	0.656
≤ 4,000	58.3	41.7	100.0	60			
> 4,000	51.1	48.9	100.0	131			
Total	53.4	46.6	100.0	191			

TABLE 21

CHI-SQUARE TEST OF RELATIONSHIPS OF FAMILY BACKGROUND VARIABLES TO A HISTORY OF EVER TRIED OPIATES

	Heroin						
Variable	Ever	Never	Total	N	X^2	df	P-Value
Parents' Marital Status					3.502	2	0.154
Living together	2.9	97.1	100.0	105			
Other	9.3	90.7	100.0	86			
Total	5.8	94.2	100.0	191			
Father's Education					1.057	2	0.601
< Pratom 4	6.2	93.8	100.0	80			
> Pratom 4	11.3	88.7	100.0	53			
Total	8.3	91.7	100.0	133			
Mother's Education					0.029	1	0.959
< Pratom 4	7.6	92.4	100.0	118			
> Pratom 4	8.7	91.3	100.0	23			
Total	7.8	92.2	100.0	141			
Father's Occupation					9.733	2	0.008
Government officer and enterprise employee	15.2	84.8	100.0	33			
Unskilled employee	1.9	98.1	100.0	106			
Trader, peasant	12.5	87.9	100.0	33			
Total	6.4	93.6	100.0	172			

TABLE 21 - Continued

Variable	Heroin: Ever	Heroin: Never	Heroin: Total	N	X^2	df	P-Value
Mother's Occupation					20.754	2	< 0.001
Government officer and enterprise employee	28.6	71.4	100.0	7			
Unskilled employee	1.5	98.5	100.0	137			
Trader, peasant, housewife	17.5	82.7	100.0	40			
Total	6.0	94.0	100.0	184			
Father's Manner					0.792	2	0.683
Appropriate	4.2	95.8	100.0	71			
Inappropriate	7.5	92.5	100.0	106			
Total	6.2	93.8	100.0	177			
Mother's Manner					0.391	2	0.826
Appropriate	7.0	93.0	100.0	99			
Inappropriate	4.8	95.2	100.0	82			
Total	6.0	94.0	100.0	181			
Parents' Relationship					5.134	2	0.081
Good relationship	16.0	84.0	100.0	25			
Quarrel some	4.6	95.4	100.0	153			
Total	6.2	93.8	100.0	178			

TABLE 21 - Continued

Variable	Heroin: Ever	Heroin: Never	Total	N	X^2	df	P-Value
Family's Income					2.072	2	0.376
≤ 4,000	9.7	90.3	100.0	62			
> 4,000	4.2	95.8	100.0	119			
Total	6.0	94.0	100.0	181			

TABLE 22

CHI-SQUARE TEST COMPARISON OF STUDY AND CONTROL GROUPS BY FATHERS' MANNER

	Study Group		Control Group			
Father's Manner	N	%	N	%	X^2	P-Value
Total	191	100.0	199	100.0	3.389	< 0.001
1. Dominant	86	45.0	177	88.9	2.537	< 0.001
Weak	91	47.7	16	8.1		
Unknown	14	7.3	6	3.0		
2. Warm	67	35.1	136	68.3	1.617	< 0.001
Rigid	110	57.1	57	28.7		
Unknown	14	7.3	6	3.0		
3. Informal	24	12.6	113	56.8	3.153	< 0.001
Formal	153	80.1	80	40.2		
Unknown	14	7.3	6	3.0		
4. Unauthoritative	64	33.5	125	62.8	2.940	< 0.001
Authoritative	113	59.2	68	34.2		
Unknown	14	7.3	6	3.0		
5. Cheerful	21	11.0	150	75.4	1.623	< 0.001
Gloomy	156	81.7	43	21.6		
Unknown	14	7.3	6	3.0		
6. Talkative	24	12.6	133	66.8	1.627	0.010
Silent	153	80.1	60	30.2		
Unknown	14	7.3	6	3.0		
7. Active	139	72.8	176	88.5	0.418	0.995
Inactive	38	19.9	17	8.5		
Unknown	14	7.3	6	3.0		
8. Flexible	86	45.0	129	64.8	0.768	0.597
Strict	91	47.7	64	32.2		
Unknown	14	7.3	6	3.0		
9. Good tempered	125	65.5	88	44.2	1.407	0.038
Bad tempered	52	27.2	105	52.8		
Unknown	14	7.3	6	3.0		

TABLE 23

CHI-SQUARE TEST COMPARISON OF STUDY AND CONTROL GROUPS BY MOTHERS' MANNER

	Study Group		Control Group			
Mother's Manner	N	%	N	%	X^2	P-Value
Total	191	100.0	199	100.0	4.669	< 0.001
1. Dominant	106	55.5	170	84.5	3.910	< 0.001
Weak	75	39.3	27	13.6		
Unknown	10	5.2	2	1.0		
2. Warm	95	49.8	140	70.4	2.858	< 0.001
Rigid	86	45.0	57	28.6		
Unknown	10	5.2	2	1.0		
3. Informal	72	37.8	147	73.9	3.959	< 0.001
Formal	109	57.0	50	25.1		
Unknown	10	5.2	2	1.0		
4. Unauthoritative	79	41.4	150	75.4	2.467	< 0.001
Authoritative	102	53.4	47	23.6		
Unknown	10	5.2	2	1.0		
5. Cheerful	116	60.7	162	81.4	5.930	< 0.001
Gloomy	65	34.1	35	17.6		
Unknown	10	5.2	2	1.0		
6. Talkative	114	59.7	160	80.4	4.932	< 0.001
Silent	67	35.1	37	18.6		
Unknown	10	5.2	2	1.0		
7. Active	156	81.7	177	88.9	1.121	0.162
Inactive	25	13.1	20	10.1		
Unknown	10	5.2	2	1.0		
8. Flexible	83	43.5	71	35.7	1.270	0.079
Strict	98	51.3	126	63.3		
Unknown	10	5.2	2	1.0		
9. Good tempered	77	43.3	117	58.8	2.095	< 0.001
Bad tempered	104	54.6	80	40.2		
Unknown	10	5.2	2	1.0		

BIBLIOGRAPHY

Bhanthumnavin, D., and Jaroenying, B. "Social Influences Attitude." Research Report No. 18, Behavioral Science Research Institute, Srinakharinwirot University, 1974.

Chanmachanakit, Sirikarn. "Facts about Solvents and Aerosols." Addiction Research Foundation of Ontario, Canada, 1980.

Jitra Fao-Sup. "The Study on Attitudes of the Addicted toward the Parents' Care." Master thesis, Srinakharinwirot University, 1977.

Manoj, Leeto-Chawalit. "Inhalants." Thailand Narcotics Journal, vol. 1, no. 1 (1984):60-70.

Ministry of Education and Ministry of Public Health. Inhalants. Bangkok: Pitak Aksorn Printing Press, 1983.

Ministry of Interior. Cevil Registration Center. Department of Local Administration, 1984.

Mongkolcheep, Puthi and Others. "The Study on the Problems of Inhalant Practices of Youth." Thailand Narcotics Journal, vol. 3, no. 2 (1981):40-65.

Narcotics Research Center. "College-Level Respondents to Questions on Thinner Sniffing." Medical Scientific Research Institute, Chulalongkorn University, 1977-1978.

Narcotics Research Center. "Report on Narcotics." Medical Scientific Research Institute, Chulalongkorn University, June 1979.

Office of the Narcotics Control Board. "Inhalant." Material Paper, 1984.

Otrakul, Amohorn; Thongyot Chaichana; and Banchong Suesaman. "Factors Stressful to Pupils." The Journal of the Psychiatric Association of Thailand, vol. 28, no. 4 (October-December 1983):198-205.

Preventive Education Division. "Basic Knowledge on Inhalants." Office of the Narcotics Control Board, 1981.

Shrisangnam, Udomsilp. "Inhalants and Other Drugs." Research Report. Siriraj Hospital. Faculty of Medical Science, Mahidol University, 1984.

Sucha-Surang, Jan-Em. "Inhalants and Drugs." Psychology of Juvenile Delinquency. Thailand: Watanapanich Printing Press, 1984.

Supap, Supatra. "Juvenile Court with the Juvenile Delinquent." Political Science Faculty, Chulalongkorn University, 1964.

Thai-Khiew, Tawatchai. "The Etiology of Inhalant Abuse." M.A. thesis, Mahidol University, 1983.

Thai Rat Newspaper, 9 February 1981, 1.

Tiewthanom, Rawadi. "Solvents and Aerosol." Health Department. Bangkok Metropolitan, 1982.

Uaychai, Prapas. The Role of Juvenile Court with National Security. Bangkok: Thammasart Printing Press, 1974.

Watharakittri, Sauwapa. "The Problem of Children and Youth in Bangkok." The Report on Study Research. Kasetsart University, Bangkok, Thailand, 1978.